IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of:	)	Confirmation No.: 8871
	)	
Ashish Thusoo	)	Examiner: Cory C. Bell
	)	
Serial No.: 10/662,095	)	Group Art Unit No.: 2164
	)	
Filed on: September 12, 2003	)	
	)	
For: AGGREGATE FUNCTIONS IN DML RETURNING CLAUSE		

Via EFS-Web
Commissioner for Patents
P. O. Box 1450
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REPLY BRIEF

Sir:

This Reply Brief is submitted in response to the Examiner's Answer mailed on

November 15, 2007.

I. STATUS OF CLAIMS

Claims 1-20 and 22-25 are pending in this application and were finally rejected in the

Final Office action mailed on December 22, 2006. Claim 21 was canceled during prosecution.

Claims 1-20 and 22-25 are the subject of this appeal.

II. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-7, 10, and 15-20 have been rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over PL/SQL User's Guide and Reference Release 2(9.2) ("reference [A]") in view of Applicant admitted prior art ("AAPA"). Reference [A] includes: (a) pages 51-55 of Chapter 5, entitled "PL/SQL Collections and Records"; and (b) pages 1-13 of Chapter 12, entitled "Tuning PL/SQL Applications".

Claims 8-9, 11, 13, 22, and 24 have been rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over reference [A] in view of Oracle Corporation, "Oracle9i SQL Reference, Release 2(9.2) ("reference [B]").

Claims 12 and 23 have been rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over reference [A] in view of reference [B], and further in view of U.S. Patent No. 6,567,803 issued to Ramasey et al. ("*Ramasey*").

III. ARGUMENTS

Claims 1-20 and 22-25 stand rejected under 35 U.S.C. § 103(a). "Section 103 forbids issuance of a patent when 'the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.'" KSR Int'l Co. v. Teleflex Inc., 127 S.Ct. 1727, 1734, 82 USPQ2d 1385, 1391 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art.... Graham v. John Deere Co., 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966). See also KSR, 127 S.Ct. at 1734, 82 USPQ2d at 1391. "If a court, or patent examiner, conducts this analysis and concludes the claimed subject matter was obvious, the claim is invalid under §103."

In the present matter, the Examiner has made clearly erroneous factual findings regarding the scope and content of the prior art, and in particular, what certain cited prior art references teach. Therefore, the Examiner's analysis and the rejection based thereon are invalid.

A. CLAIMS 1 AND 15

Claims 1 and 15 feature:

"receiving a **database statement that**
> **specifies a data manipulation language (DML) operation** that modifies data
>> in one or more columns in a database, **and**
> **contains a clause that specifies an aggregate operation** to be performed on a
>> plurality of values associated with the data, wherein each of the plurality
>> of values are from a separate row; and
in response to receiving the database statement,
> performing the DML operation on the one or more columns in the database,
> performing the aggregate operation on the plurality of values, and

returning as a result of the database statement a result of the aggregate operation." (emphasis added)

Reference [A] and the AAPA fail to teach or suggest the recited database statement of Claim 1. In this section, the remarks and arguments with respect to Claim 1 also apply to Claim 15.

1.   Reference [A] does not teach aggregating in the RETURNING clause

In rejecting Claim 1, the Examiner's Answer alleges that [A] "teaches aggregating that values of the ename, jab, and sal variables into an emp info variable which is then returned" (page 4). This is incorrect. The values of the three variables are not **aggregated**. Rather, the values of the three variables are bound to the emp_info record variable (see page 53 of [A]). Page 11 of the Examiner's Answer even provides examples of aggregate operations, such as average, count, maximum, minimum, and sum.

As evidence of this misunderstanding of aggregating, the previous Office actions and page 4 of the Examiner's Answer allege, "Reference [A] also shows the need to aggregate data further as it states: 'Now do computations involving name and new_sal.'" Supposedly, the examiner suggests that computations involving name and new_sal must be aggregate operations. This is incorrect. The variables "name" and "new_sal" are different data types: "name" is a character string and "new_sal" is a number, such as an integer. Usually, aggregate operations operate on multiple values of the same data type, not different data types. Rather, the statement, "Now do computations involving name and new_sal", is simply a comment, which acts as a cue to the programmer who composed the preceding SQL statement, to remind the programmer to compose additional SQL that references the "name" and "new_sal" variables.

2.   *Reference [A] teaches away from the proposed modification of the prior art RETURNING clause*

It would not have been obvious to even modify reference [A] to disclose a RETURNING clause that returns column values from *multiple* affected rows, much less to modify reference [A] to disclose a clause that specifies an aggregate operation. MPEP § 2141.02(VI) states: "A prior art reference must be considered in its entirety, i.e., as a <u>whole</u>, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983)" (emphasis in original). Further, MPEP § 2144.05(III) states: "A *prima facie* case of obviousness may also be rebutted by showing that the art, <u>in any material respect</u>, teaches away from the claimed invention" (underlined emphasis added).

Reference [A] specifically states, "You can use [the RETURNING] clause *only* when operating on **exactly** **one** **row**." (page 53 of Chapter 5, entitled "PL/SQL Collections and Records"). Therefore, reference [A] **teaches away** from using a RETURNING clause when values from multiple rows are modified. MPEP §§ 2141.02(VI), 2143.01(I), and 2144.05(III) state that the teaching away statement(s) should at least **discourage** one of ordinary skill in the art from modifying the cited reference(s). It is respectfully submitted that the teaching away statement in reference [A] rises to the level of discouraging one of ordinary skill in the art to modify reference [A] as alleged. Indeed, after reading the teaching away statement in reference [A], one of ordinary skill in the art would attempt to use a different method for performing an aggregate operation on values from separate rows, such as the iterative approach described in the Background section of applicant's specification.

The Examiner's Answer states, "Appellant fails to recognize the distinction between not teaching a limitation and teaching away." The statement from reference [A] that "[y]ou can use

[the RETURNING] clause only when operating on exactly one row" is **significantly much**

more than "not teaching a limitation" as the Examiner's Answer suggests. The teaching away

statement is **explicit** and **specific** and, as stated earlier, rises to the level of discouraging one of

ordinary skill in the art to modify the prior art RETURNING clause of reference [A] to include

the ability for a RETURNING clause to specify an operation, much less an aggregate operation.

        3.   *The proposed modification of reference [A] would change the principle*
                  operation of the prior art RETURNING clause

MPEP 2143.01(VI) states: "If the proposed modification or combination of the prior art

would change the principle of operation of the prior art invention being modified, then the

teachings of the references are **not** sufficient to render the claims *prima facie* obvious"

(emphasis added). The principle operation of the prior art RETURNING clause is to, as stated

in reference [A], return a single row when a value in that row changed. Because reference [A]

unequivocally and expressly teaches that the prior art RETURNING clause can **only be used**

when operating on **exactly one** row, the proposed modification to include the ability for the

prior art RETURNING clause to specify an aggregate operation (thus, operating on multiple

rows) would change the principle of operation of the prior art RETURNING clause.

        4.   *The prior art elements cannot be combined according to known methods*
                  to yield predictable results

Page 12 of the Examiner's Answer alleges that "the present case satisfies the rationale

of combining prior art elements according to known methods to yield predictable results."

However, MPEP § 2143(A) states: "The rationale to support a conclusion that the claim would

have been obvious is that all the claimed elements were known in the prior art and one skilled

in the art could have combined the elements as claimed by known methods with **no change** in

their respective functions." (emphasis added). As articulated previously, the prior art

RETURNING clause can only be used when operating on exactly one row. Thus, in order to render Claim 1 obvious in light of the cited art, the function of the prior art RETURNING clause **would have to** change, i.e., the prior art RETURNING clause would have to be modified to specify an operation to be performed on multiple values from different rows. Therefore, according to MPEP § 2143(A), the rationale of "combining prior art elements according to known methods to yield predictable results" cannot be used to support a conclusion of obviousness.

        5.   *The suggestive power of the AAPA does not outweigh the teaching away of reference [A]*

On page 13, the Examiner's Answer asserts: "[The applicant's teaching away] argument also fails as even if [A] were considered to teach away it would be outweighed by the suggestive power of the AAPA." This is incorrect. The AAPA merely describes one technique (i.e., the iterative technique) for situations where a first operation changes many values and (2) an aggregate operation is performed on multiple values associated with the changed values (see paragraph [0005] of applicant's specification). The only suggestion in the AAPA is that the described iterative technique exists.

Perhaps the examiner is relying on the statements made in paragraph [0016] of applicant's specification as a suggestion to modify the prior art RETURNING clause. That paragraph states:

> It should be noted that in the present example, the user was only interested in the sum of the old values, not in the individual old values themselves. However, for the sum of the old values to be calculated, all of the values-of-interest are returned. Performing aggregate functions using the iterative approach not only returns unnecessary data from the server to the client but may also require an evaluation of the aggregation by the application 109 on the client side. Thus, conventional methods of performing aggregate functions on values-of-interest are inefficient. Therefore, it is desirable to provide techniques for performing aggregate functions on values-of-interest that do not involve the programming

complexity and wasteful data movement as experienced using conventional techniques.

Merely because a problem or need is mentioned in an applicant's disclosure does not necessarily indicate that the problem or need was known to one of ordinary skill in the art at the time of the invention.

The teaching or suggestion to make a proposed modification must **not** be based on **applicant's disclosure**. (MPEP § 2142). MPEP § 2142 further warns that "impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art" (emphasis added). The only exception to this bar against using the applicant's disclosure is when the applicant makes an admission of prior art in the application. "A statement by an applicant during prosecution identifying the work of another as 'prior art' is an admission which can be relied upon for both anticipation and obviousness determinations, regardless of whether the admitted prior art would otherwise qualify as prior art under the statutory categories of 35 U.S.C.102. *Riverwood Int 'l corp. v .R.A.Jones &Co.*, 324 F.3d 1346, 1354,66 USPQ2d 1331,1337 (Fed Cir.2003)" (MPEP 2129).

Paragraph [0016] of applicant's specification does not, in any way, identify the problems of the iterative approach as problems that were known to one of ordinary skill in the art at the time of the invention. Further, the need described in the last sentence of paragraph [0016] is not identified as a need that was known to one of ordinary skill in the art at the time of the invention. Technically, nothing in paragraph [0016] can be considered an admission of prior art.

A possible basis for the Office actions and the Examiner's Answer alleging that the applicant disclosed prior art in paragraph [0016] of applicant's specification is the mistaken assumption that the MPEP mandates that only prior art be disclosed in the Background section.

Therefore, any disclosure in the Background is a disclosure of prior art. This assumption is incorrect.

> The Background of the Invention <u>ordinarily comprises</u> two parts:
> (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions. The statement should be directed to the subject matter of the claimed invention.
> (2) Description of the <u>related</u> art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A paragraph(s) describing to the extent practical the state of the prior art or other information disclosed known to the applicant, including references to specific prior art or other information where appropriate. Where applicable, the problems involved in the prior art or other information disclosed which are solved by the applicant's invention should be indicated. MPEP § 608.01(c) (Emphasis added)

As shown above, the MPEP states that the background ordinarily includes <u>related</u> art, not just prior art. Further, the MPEP states that the background ordinarily includes prior art, but does not state the background should or must only describe prior art.

Based on the foregoing, because (1) the teaching away statement in reference [A] teaches away from the proposed modification of the prior art RETURNING clause and (2) nothing in applicant's disclosure (i.e., that could technically be considered "prior art") suggests such modification, Claim 1 is patentable over reference [A] and the AAPA.

> 6.   *The cited art and the examiner fail to provide a reason for integrating all the features of the SELECT statement*

The final Office action and the Examiner's Answer cite reference [A] for teaching: "[Including a RETURNING clause in INSERT, UPDATE, and DELETE statements] eliminates the need to **SELECT** *the row* after an insert or update, or before a delete" (page 9 of Chapter 12; emphasis added). Thus, the RETURNING clause is used only in this specific instance when a single row is modified. The final Office action and the Examiner's Answer then allege that "to truly eliminate the need for the SELECT clause [the RETURNING clause] would need to integrate all the features of the SELECT clause, i.e. the ability to perform aggregate functions

as claimed" (page 4). (It is respectfully noted that "SELECT clause" should read "SELECT statement").

It does not necessarily follow that the RETURNING clause would incorporate certain features of the SELECT statement (as alleged on page 14 of the Examiner's Answer) simply because reference [A] states that the RETURNING clause eliminates the need to SELECT a *single row* in a *specific instance*. Such an inference requires multiple deductive steps that are <u>missing</u> from the examiner's arguments and the cited references. Indeed, reference [A] does <u>not</u> teach or suggest that the RETURNING clause eliminates the need for a SELECT statement in <u>*any* instance other than the instance described</u>, i.e., after a row insert or row update, or before a row delete.

The AAPA shows a database statement that includes a RETURNING clause that returns updated values. The AAPA subsequently shows an aggregate operation (specifically, a summation operation) that is performed on the updated values. However, the combination of this AAPA and the statement in reference [A] that describes the purpose of the RETURNING clause (i.e., fewer network round trips, less server CPU time, fewer cursors, and less server memory) does <u>not</u> result in the recited database statement of Claim 1. Indeed, the AAPA provides an example of the prior art RETURNING clause. Without the RETURNING clause in the AAPA, a programmer may have to SELECT each updated row individually. Thus, the iterative approach described in the AAPA **already obtains the benefit of the RETURNING clause**, i.e., fewer network round trips, less server CPU time, fewer cursors, and less server memory. There is no teaching, suggestion, or motivation to modify the RETURNING clause <u>further</u> as the examiner alleges. It is respectfully submitted that one of ordinary skill in the art at the time of the invention would understand the "benefit statement" of the RETURNING clause in reference [A] as applying to the RETURNING clause as it currently exists (even in the

iterative approach described in the AAPA) and not seek to modify the RETURNING clause further.

>   7.   *Response to particular misstatements in the Examiner's Answer*

So as to clear up any misunderstanding with respect to the arguments against patentability, a few clarifications are warranted. First, on page 3, the Examiner's Answer asserts: "Appellant's admitted prior art [AAPA] in the Background of appellant's specification conventional implementations of multi row aggregates using the RETURNING clause." Page 14 of the Examiner's Answer similarly asserts: "As the AAPA shows how programmers were performing the aggregate operations with RETURNING clauses that only operated on single rows." These statements are incorrect. Prior to the present invention as claimed in Claim 1, there were no "implementations of multi row aggregates using the RETURNING clause." Also, as outlined in the Background section of applicant's specification, aggregate operations were **not** performed with RETURNING clauses. Instead, the RETURNING clause was used to return "values-of-interest" one at a time into an array. Subsequently, the array was returned to the user. Lastly, an aggregate operation was performed on the values-of-interest in the array. **No where** does the AAPA even suggest (a) that multi row aggregate functions used the RETURNING clause or (b) that aggregate operations were performed with RETURNING clauses.

Second, page 13 of the Examiner's Answer states that,

> given that programmers were performing [aggregate operations] on the client
> side and it was known how to perform multi row aggregate on the server side (as
> was done in SELECT statements) this combination would have been obvious as,
> the combination of these known methods would yield a RETURNING clause in
> which one could specify multi-row aggregates to provide the [predictable] result
> of having the ability to perform aggregate functions on values in the
> RETURNING clause.

It appears that the Examiner's Answer is suggesting that it would be obvious to combine (1) the performing of aggregate operations on the client side with (2) the performing of aggregate operations on the server side. Such a "combination" is inherently unclear. The aggregation of data either occurs on the client side or the server side, not both. The examiner <u>unreasonably concludes</u> that, because (1) aggregation operations may be performed on the client side and (2) aggregation operations may be performed on the server side, Claim 1 is obvious, i.e., that a single database statement specifies a DML operation <u>and</u> contains a clause that specifies an aggregate operation to be performed on multiple values from different rows. Such a conclusion of obviousness does not follow from facts (1) and (2) above.

8. *Summary*

Based on the foregoing, all the features of Claims 1 are not taught or suggested by reference [A] or AAPA, either individually or in combination. It would <u>not</u> have been obvious to one of ordinary skill in the art at the time of the invention to modify reference [A] to include a (e.g., RETURNING) clause, in a database statement, that (1) specifies a DML operation and (2) contains an aggregate operation because reference [A] teaches that a RETURNING clause can only be used when operating on <u>exactly one row</u>.

B.   CLAIMS 2-14, 16-20, AND 22-25

Claims 2-14 are dependent upon Claim 1, and Claims 16-20 and 22-25 are dependent upon Claim 15. Thus, each of Claims 2-14, 16-20, and 22-25 include each and every feature of the corresponding independent claims. Therefore, the Applicant respectfully submits that each of Claims 2-14, 16-20, and 22-25 is therefore allowable for the reasons given above for Claims 1 and 15. In addition, each of Claims 2-14, 16-20, and 22-25 may introduces one or more additional limitations that independently render it patentable. A full discussion of each

dependent claim is not included herein at this time based on the fundamental differences already identified herein.

C. CONCLUSION AND PRAYER FOR RELIEF

Based on the foregoing, it is respectfully submitted that the rejection of Claims 1-20 and 22-25 under 35 U.S.C. § 103(a) as being unpatentable over the cited art lacks the requisite factual and legal bases. Appellants therefore respectfully request that the Honorable Board reverse the rejection of Claims 1-20 and 22-25 under 35 U.S.C. § 103(a).

Respectfully submitted,

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